## REMARKS

In the event the Examiner has any queries regarding the instantly submitted Amendment, Applicants' attorney respectfully requests the courtesy of a telephone conference to discuss any matters in need of attention.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicants' Attorneys.

Respectfully submitted,

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**Version with markings to show changes made.**

**A marked up version of paragraph 45 of the specification follows:**

[0045] After the average of each parameter is determined in block 5.2, mapping device 13 instructs combustion controller 11 to increase the ring flame temperatures in the dome (ring) being mapped by a predetermined number of degrees in block 5.3. For example, the A ~~ring~~ ring flame temperature may be increased by 20 degrees Fahrenheit while the C ~~ring~~ ring flame temperature may be increased by 40 degrees Fahrenheit. After the ring flame temperatures are incremented in block 5.3, procedure 300 is delayed a predetermined amount of time (e.g., 5 seconds) in block 5.4 to allow the combustor sensor readings to stabilize. The procedure then continues to block 5.5, where it is determined whether or not the acoustics and blow out avoidance logic (e.g. ABAL) in the controller 11 has been activated in response to the increase in ring flame temperature made in block 5.3. If the acoustics and blow out avoidance logic has been activated, then the last adjustment to the ring flame temperature (i.e. the ring flame temperature increases made in block 5.3) are negated in block 5.6, and ring flame temperature is allowed to return to the temperature before block 5.3. -Emissions are then allowed to stabilize in block 5.7, and procedure 300 continues to block 1.10 of method 100 where current parameters (the average values calculated in block 5.2) are stored in memory device 82 as maximum temperature values and a MAX ACOUSTIC or MAX BLOWOUT flag is set to true, depending on which limit was reached in the acoustics and blow out avoidance logic.



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**A "marked up" version of claim 1 follows:**

1. A method of mapping a combustor in a gas turbine engine, said method including:

determining a first burner dome to be adjusted in said gas turbine engine for a first burner mode;

adjusting a ring flame temperature at said first burner dome in said gas turbine engine to determine a maximum ring flame temperature boundary for said first burner dome;

recording into memory a plurality of parameters from ~~said~~a plurality of sensors coupled to said gas turbine engine operating at said maximum ring flame temperature boundary;

adjusting said ring flame temperature at said first burner dome in said gas turbine engine to determine a minimum ring flame temperature boundary for said first burner dome;

recording into memory a plurality of parameters from said plurality of sensors coupled to the gas turbine engine operating at said minimum ring flame temperature boundary;

subtracting a minimum ring flame temperature at said minimum ring flame temperature boundary from a maximum ring flame temperature at said maximum ring flame temperature boundary to determine a temperature window size;

calculating a nominal ring flame temperature from the minimum and maximum ring flame temperatures when said temperature window size is greater than a predetermined minimum window size;

adjusting the ring flame temperature in said first burner dome to said nominal ring flame temperature; and

recording into memory a plurality of parameters from said plurality of sensors coupled to the gas turbine engine operating at said nominal ring flame temperature.

**A "marked up" version of claim 11 follows:**

11. The method of claim 2, further comprising:

repeating said adjusting said bulk combustor flame temperature if a high pressure turbine outlet temperature at said maximum ring flame temperature boundary is less than a predetermined upper limit high pressure turbine outlet temperature and said temperature window size is less than said predetermined minimum window size.

**A "marked up" version of claim 12 follows:**

12. The method of claim 2, further comprising:

repeating said adjusting said bulk combustor flame temperature if a high pressure turbine outlet temperature at said minimum ring flame temperature boundary is less than a predetermined upper limit high pressure turbine outlet temperature and said temperature window size is less than said predetermined minimum window size.

**A "marked up" version of claim 13 follows:**

13. The method of claim 1, further comprising:

activating an alarm if a NOx emissions level at said maximum ring flame temperature boundary is greater than a predetermined upper limit NOx emissions level and said temperature window size is less than said predetermined minimum window size.

**A "marked up" version of claim 16 follows:**

16. The method of claim 1, further comprising:

activating an alarm if a NOx emissions level at said minimum ring flame temperature boundary is greater than a predetermined upper limit NOx emissions level and said temperature window size is less than said predetermined minimum window size.



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**A "marked up" version of claim 17 follows:**

17. The method of claim 1, further comprising:

activating an alarm if a high pressure turbine outlet temperature at said maximum ring flame temperature boundary is greater than a predetermined upper limit high pressure turbine outlet temperature and said temperature window size is less than said predetermined minimum window size.

**A "marked up" version of claim 18 follows:**

18. The method of claim 1, further comprising:

activating an alarm if a high pressure turbine outlet temperature at said minimum ring flame temperature boundary is greater than a predetermined upper limit high pressure turbine outlet temperature and said temperature window size is less than said predetermined minimum window size.

**A "marked up" version of claim 45 follows:**

45. The storage medium of claim 32, further including instructions for causing a computer to implement:

repeating said adjusting said bulk combustor flame temperature if said NOx emissions level at said nominal ring flame temperature is greater than a predetermined upper limit NOx emissions level limit.

**A "marked up" version of claim 70 follows:**

70. The system of claim 62, wherein said mapping device causes said controller to adjust said bulk combustor flame temperature if a NOx emissions level at said minimum ring flame temperature boundary is less than a predetermined upper limit NOx emissions level and said temperature window size is less than said predetermined minimum window size.



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**A "marked up" version of claim 71 follows:**

71. The system of claim 62, wherein said mapping device causes said controller to adjust said bulk combustor flame temperature if a high pressure turbine outlet temperature at said maximum ring flame temperature boundary is less than a predetermined upper limit high pressure turbine outlet temperature and said temperature window size is less than said predetermined minimum window size.

**A "marked up" version of claim 72 follows:**

72. The system of claim 62, wherein said mapping device causes said controller to adjust said bulk combustor flame temperature if a high pressure turbine outlet temperature at said minimum ring flame temperature boundary is less than a predetermined upper limit high pressure turbine outlet temperature and said temperature window size is less than said predetermined minimum window size.

**A "marked up" version of claim 73 follows:**

73. The system of claim 61, wherein said mapping device activates an alarm if a NOx emissions level at said maximum ring flame temperature boundary is greater than a predetermined upper limit NOx emissions level and said temperature window size is less than said predetermined minimum window size.

**A "marked up" version of claim 76 follows:**

76. The system of claim 61, wherein said mapping device activates an alarm if a NOx emissions level at said minimum ring flame temperature boundary is greater than a predetermined upper limit NOx emissions level and said temperature window size is less than said predetermined minimum window size.



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**A "marked up" version of claim 77 follows:**

77. The system of claim 61, wherein said mapping device activates an alarm if a high pressure turbine outlet temperature at said maximum ring flame temperature boundary is greater than a predetermined upper limit high pressure turbine outlet temperature and said temperature window size is less than said predetermined minimum window size.

**A "marked up" version of claim 78 follows:**

78. The system of claim 61, wherein said mapping device activates an alarm if a high pressure turbine outlet temperature at said minimum ring flame temperature boundary is greater than a predetermined upper limit high pressure turbine outlet temperature and said temperature window size is less than said predetermined minimum window size.



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